

JUL 12 2001

JC152
PATENT & TRADEMARK OFFICE

SHEET 1 OF 6

**INFORMATION DISCLOSURE
CITATION**

PTO-1449

ATTORNEY'S DKT NO.
015290-508APPLICATION NO.
09/775,664

APPLICANT

Paul SHUFFLEBOTHAM et al.

FILING DATE

February 5, 2001

GROUP

Unassigned

U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
<i>JR</i>	4,173,661	11/06/79	Bourdon	433	485	
<i>JR</i>	4,270,999	06/02/81	Hassan et al.	204	192,32	
<i>JR</i>	4,340,462	07/20/82	Koch	204	298,33	
<i>JR</i>	4,512,283	04/23/85	Bonifield et al.	118	725	16-2001
<i>JR</i>	4,539,068	09/03/85	Takagi et al.	427	576	200
<i>JR</i>	4,579,618	04/01/86	Celestineo et al.	156	395	
<i>JR</i>	4,614,639	09/30/86	Hegedus	422	181,05	
<i>JR</i>	4,690,746	09/01/87	McInerney et al.	206	192,32	
<i>JR</i>	4,691,662	09/08/87	Roppel et al.	118	50-1	
<i>JR</i>	4,732,761	03/22/88	Machida et al.	433	695	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No
<i>JR</i>	0440154	08/07/91	Europe				
<i>JR</i>	0489407	06/10/92	Europe				
<i>JR</i>	0520519	12/30/92	Europe				
<i>JR</i>	0641013	03/01/95	Europe				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

<i>JR</i>	"Fundamentals, Etching, Deposition, and Surface Interactions", by Stephen M. Rossnagel et al., <u>Handbook of Plasma Processing Technology</u> , (1989), pp. 233-306.
<i>JR</i>	"Electron cyclotron resonance microwave discharges for etching and thin-film deposition", by Jes Asmussen, <u>J. Vac. Sci. Technol. A</u> , Vol. 7, No. 3, (May/June 1989), pp. 883-893, New York, NY.
<i>JR</i>	Qian, L.Q., et al., "High Density Plasma Deposition and Deep Submicron Gap Fill with Low Dielectric Constant SiOF Films" <u>DUMIC Conference</u> , Feb. 21-22, 1995, 1995 ISMIC - 101D/95/0050, pp. 50-56.
<i>JR</i>	Shufflebotham, P. et al., "Biased Electron Cyclotron Resonance Chemical-Vapor Deposition of Silicon Dioxide Inter-Metal Dielectric Thin Films" <u>Materials Science Forum</u> , vol. 140-142 (1993) pp. 255-268, Switzerland.

EXAMINER	DATE CONSIDERED
<i>Buddy Long</i>	<i>February 6, 2001</i>

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JR	4,806,321	02/21/89	Nishizawa et al.	118	666	RECEIVED
JR	4,854,263	08/08/89	Chang et al.	118	715	16 2001
JR	4,877,641	10/31/89	Dory	427	574	6 2001
JR	4,913,929	04/03/90	Moslehi et al.	427	561	6 2001
JR	4,919,745	04/24/90	Fukuta et al.	156	343	300
JR	4,943,345	07/24/90	Asmussen et al.	216	69	
JR	4,948,458	08/14/90	Ogle	438	729	
JR	4,980,204	12/25/90	Fujii et al.	117	98	
JR	4,992,301	02/12/91	Shishiguchi et al.	118	724	
JR	4,996,077	02/26/91	Moslehi et al.	427	562	
JR	5,013,691	05/07/91	Lorey et al.	438	789	
JR	5,089,442	02/18/92	Olmer	438	631	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No
JR	0674336	09/27/95	Europe				
JR	0676790	10/11/95	Europe				
JR	0676793	10/11/95	Europe				
JR	0637058	02/01/95	Europe				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

JR	"Silicon dioxide trench filling process in a radio-frequency hollow cathode reactor", by M. Gross et al., <u>J. Vac. Sci. Technol. B</u> , Vol. 11(2), (March/April 1993), pp. 242-248, Triangle Park, North Carolina.
JR	"Low-temperature deposition of silicon dioxide films from electron cyclotron resonant microwave plasmas", by T.V. Herak et al., <u>J. Appl. Phys.</u> , 65(6), (March 15, 1989), pp. 2457-2463, New York, New York.
JR	"New approach to low temperature deposition of high-quality thin films by electron cyclotron resonance microwave plasmas", by T.T. Chau et al., <u>J. Vac. Sci. Technol. B</u> , Vol. 10(5) (Sep./Oct. 1992), pp. 2170-2178, New York, New York.

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U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
RJZ	5,105,761	04/21/92	Charlet et al.	118	723R	
RJZ	5,124,014	06/23/92	Foo et al.	118	694	
RJZ	5,134,965	08/04/92	Tokuda et al.	118	723R	
RJZ	5,164,040	11/17/92	Eres et al.	427	620	2001
RJZ	5,169,509	12/08/92	Latz et al.	241	29803	
RJZ	5,182,221	01/26/93	Sato	428	429	
RJZ	5,192,370	03/09/93	Oda et al.	118	723R	
RJZ	5,200,232	04/06/93	Tappan et al.	427	569	
RJZ	5,231,334	07/27/93	Paranjpe	315	111.21	
RJZ	5,252,133	10/12/93	Miyazaki et al.	118	725	
RJZ	5,262,029	11/16/93	Erskine et al.	241	298,15	
RJZ	5,267,607	12/07/93	Wada	115	82-1	

FOREIGN PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation
						Yes No
RJZ	0709875	05/01/96	Europe			
RJZ	7-297139	11/10/95	Japan			Abstract Only

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

RJZ	Webb, D.A., et al., "Silicon Dioxide Films Produced by PECVD of TEOS and TMCTS", <i>10439 Proceedings of the Int. Symp. on Ultra Large Scale Integration Science and Technology</i> , (1989) No. 9, Pennington, New Jersey.
RJZ	Fukada, T. et al., "Preparation of SiOF Films with Low Dielectric Constant by ECR Plasma CVD" <i>DUMIC Conference</i> , Feb. 21-22, 1995, 1995 ISMIC - 101D/95/0043, pp. 43-46, Bunkyo-ku, Tokyo Japan.
RJZ	"Electron Cyclotron Resonance Microwave Discharges For Etching and Thin Film Deposition", by Jes Asmussen, <i>Handbook of Plasma Processing Technology</i> , May 1990, pp.285-307, Park Ridge, New Jersey.

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RJZ

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February 5, 2001GROUP
Unassigned**U.S. PATENT DOCUMENTS**

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
RZ	5,279,865	01/18/94	Chebi et al.	427	574	RECEIVED 2001
RZ	5,280,154	01/18/94	Cuomo et al.	219	121.52	
RZ	5,286,518	02/15/94	Cain et al.	427	98	
RZ	5,346,578	09/13/94	Benzing et al.	156	521.82	2001
RZ	5,368,710	11/29/94	Chen et al.	201	192.500	
RZ	5,384,008	01/24/95	Sinha et al.	438	696	
RZ	5,399,387	03/21/95	Law et al.	427	574	
RZ	5,401,350	03/28/95	Patrick et al.	156	345	
RZ	5,405,480	04/11/95	Benzing et al.	156	345	
RZ	5,415,728	05/16/95	Hasegawa et al.	433	710	
RZ	5,498,313	03/12/96	Bailey et al.	438	710	
RZ	5,522,934	06/04/96	Suzuki et al.	118	723AN	
RZ	5,522,936	06/04/96	Tamura	118	723R	
RZ	5,525,159	06/11/96	Hama et al.	118	723I	

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EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						Yes	No
RZ	96/25023	08/15/96	WIPO	—	—		

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

RZ	Hewes, K. et al., "An Evaluation of Fluorine Doped PETEOS on Gap Fill Ability and Film Characterization" Texas Instruments, Dallas Texas.
RZ	Shapiro, M.J., et al., "Dual Frequency Plasma CVD Fluorosilicate Glass Water Absorption and Stability" DUMIC Conference, February 21-22, 1995; 1994 ISMIC-101D/95/118, pp. 118-123.
RZ	Miyajima, H. et al., "Water-absorption mechanisms of F-doped PECVD SiO ₂ with low-dielectric constant" VMIC Conference, June 27-29, 1995; 1995 ISMIC-104/95/391, pp. 391-393.

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Mar 6, 2001

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			APPLICANT Paul SHUFFLEBOTHAM et al.			
PTO-1449			FILING DATE February 5, 2001	GROUP Unassigned 1703		
U.S. PATENT DOCUMENTS						
EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	
<i>JLZ</i>	5,529,657	06/25/96	Ishii	156	348	
<i>JLZ</i>	5,531,834	07/02/96	Ishizuka et al.	118	723E	
<i>JLZ</i>	5,552,124	09/03/96	Su	156	348	
<i>JLZ</i>	5,556,521	09/17/96	Ghabari	201	192230	
<i>JLZ</i>	5,571,571	11/05/96	Musaka et al.	427	570	
<i>JLZ</i>	5,605,599	02/25/97	Benzing et al.	438	729	
<i>JLZ</i>	5,614,055	03/25/97	Fairbairn et al.	156	345	
<i>JLZ</i>	5,616,519	04/01/97	Ping	438	626	
<i>JLZ</i>	5,628,829	05/13/97	Foster et al.	118	723E	
<i>JLZ</i>	5,643,640	07/01/97	Chakravarti et al.	427	578	
<i>JLZ</i>	5,653,806	08/05/97	Van Buskirk	118	715	
<i>JLZ</i>	5,661,093	08/26/97	Ravi et al.	438	763	
<i>JLZ</i>	5,679,606	10/21/97	Wang et al.	438	763	
<i>JLZ</i>	5,686,356	11/11/97	Jain et al.	438	624	
FOREIGN PATENT DOCUMENTS						
EXAMINER'S INITIALS	PATENT NO.	DATE	COUNTRY	CLASS	SUBCLASS	Translation Yes No
<i>JLZ</i>	98/28465	07/02/98	WIPO	/	/	
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)						
<i>JLZ</i>	Yeh, C.F., "Controlling Fluorine Concentration and Thermal Annealing Effect on Liquid-Phase Deposited $\text{SiO}_{2-x}\text{F}_x$ Films" <i>J. of Electrochem. Soc.</i> , Vol. 132, No. 10, October 1995, pp. 3579-3583, Pennington, New Jersey.					
<i>JLZ</i>	Kuo, Y., "Reactive Ion etching technology in thin-film-transistor processing" <i>IBM J. Res. Develop.</i> , Vol 36, No. 1, January 1992, pp. 69-75, Armonk, New York.					
EXAMINER <i>Patty Zajicek</i>	DATE CONSIDERED <i>February 6, 2001</i>					

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U.S. PATENT DOCUMENTS

EXAMINER'S INITIALS	PATENT NO.	DATE	NAME	CLASS	SUBCLASS	FILING DATE
PD	5,723,386	03/03/98	Ishikawa	438	7870	
PD	5,744,400	04/28/98	Dyer	438	631	
PD	5,753,564	05/19/98	Fukada	438	684	
PD	5,776,834	07/07/98	Avanzio et al.	438	617	8/2001
PD	5,783,492	07/21/98	Higuchi et al.	438	710	700
PD	5,789,314	08/04/98	Yen et al.	438	622	
PD	5,835,334	11/10/98	McMillin et al.	361	234	
PD	5,858,876	01/12/99	Chew	438	695	
PD	5,916,820	06/29/99	Okumura et al.	438	694	
PD	6,184,158	02/06/01	Shufflebotham et al.	438	788	

FOREIGN PATENT DOCUMENTS

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						Yes	No

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

PD	Spindler O., et al., <i>In Situ Planarization of Intermetal Dielectrics: Process Steps. Degree of Planarization and Film Properties, Thin Solid Films</i> , 175, No. 1, August 1989, pp. 67-72, Lausanne 1, Switzerland.
PD	D. Carl et al., "Comparison of PECVD F-TEOS Films and High Density Plasma SiOF Films" <i>VMIC Conference</i> , June 27-29, 1995, 1995 ISMIC-104/95/0097, pp. 97-103.
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